

**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims**

Claims 1-21 (Canceled).

22. (Currently Amended) A method of treating a wastewater stream, comprising acts of:

- (a) adding a nitrate-containing compound at a first position in the wastewater stream;
- (b) adding an alkaline material at a second position in the wastewater stream;
- (c) sensing a level of at least one of atmospheric hydrogen sulfide, dissolved sulfide, and residual nitrate in the wastewater stream downstream of the first and second positions; and
- (d) adjusting an amount of at least one of the nitrate-containing compound and the alkaline material added to the wastewater stream in response to the act of sensing.

23. (Original) The method of claim 22, wherein the act (d) is performed by a computer.

24. (Original) The method of claim 22, wherein the act (b) includes an act of adding the alkaline material in an amount sufficient to raise a pH of the wastewater stream downstream of the first and second positions by approximately one unit of pH.

25. (Original) The method of claim 22, wherein the act (b) includes an act of adding the alkaline material in an amount sufficient to raise a pH of the wastewater stream downstream of the first and second positions to between approximately 7.5 and 8.5 units of pH.

26. (Currently Amended) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of increasing an amount of the nitrate-containing compound added in act (a) when the

level of at least one of atmospheric hydrogen sulfide and dissolved sulfide sensed in act (c) is greater than a desired level.

27. (Currently Amended) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of increasing an amount of the nitrate-containing compound added in act (a) when the level of atmospheric hydrogen sulfide and the level of dissolved sulfide sensed in act (c) are greater than a desired level.

28. (Original) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of increasing an amount of the alkaline material added in act (b) when the level of at least one of atmospheric hydrogen sulfide and dissolved sulfide sensed in act (c) is greater than a desired level.

29. (Original) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of increasing an amount of the alkaline material added in act (b) when the level of atmospheric hydrogen sulfide and the level of dissolved sulfide sensed in act (c) are greater than a desired level.

30. (Currently Amended) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes acts of increasing an amount of the nitrate-containing compound added in act (a) and increasing an amount of the alkaline material added in act (b) when the level of atmospheric hydrogen sulfide and the level of dissolved sulfide sensed in act (c) are greater than a desired level.

31. (Currently Amended) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of decreasing an amount of the nitrate-containing compound added in act (a) when the level of at least one of atmospheric hydrogen sulfide and dissolved sulfide sensed in act (c) is less than a desired level.

32. (Currently Amended) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of decreasing an amount of the nitrate-containing compound added in act (a) when the level of atmospheric hydrogen sulfide and the level dissolved sulfide sensed in act (c) are less than a desired level.

33. (Original) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of decreasing an amount of the alkaline material added in act (b) when the level of at least one of atmospheric hydrogen sulfide and dissolved sulfide sensed in act (c) is less than a desired level.

34. (Original) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of decreasing an amount of the alkaline material added in act (b) when the level of atmospheric hydrogen sulfide and the level of dissolved sulfide sensed in act (c) are less than a desired level.

35. (Currently Amended) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes acts of decreasing an amount of the nitrate-containing compound added in act (a) and decreasing

an amount of the alkaline material added in act (b) when the level of atmospheric hydrogen sulfide and the level of dissolved sulfide sensed in act (c) are less than a desired level.

36. (Currently Amended) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide, the level of dissolved sulfide, and the level of residual nitrate in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of decreasing an amount of the nitrate-containing compound added in act (a) when the level of atmospheric hydrogen sulfide and the level of dissolved sulfide sensed in act (c) are less than a desired level and an average level of residual nitrate sensed in act (c) is approximately 1-2 mg/L or greater.

37. (Original) The method of claim 36, further comprising acts of:

(e) sensing a pH of the wastewater stream at or prior to the second position; and

(f) sensing a pH of the wastewater stream downstream of the first and second positions.

38. (Original) The method of claim 37, wherein the act (d) further includes an act of decreasing an amount of the alkaline material added in act (b) when the act (f) indicates that the pH of the wastewater downstream of the first and second positions is at least one unit of pH higher than the pH of the wastewater stream sensed in act (e).

39. (Original) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide, the level of dissolved sulfide, and the level of residual nitrate in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of decreasing an amount of the alkaline material added in act (b) when the level of atmospheric hydrogen sulfide sensed in act (c) is less than a first desired level, the level of dissolved sulfide sensed in act (c) is greater than a second desired level, and an average level of residual nitrate sensed in act (c) is approximately 1-2 mg/L or greater.

40. (Original) The method of claim 22, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide, the level of dissolved sulfide, and the level of residual nitrate in the wastewater stream downstream of the first and second positions, and wherein the

act (d) includes an act of increasing an amount of the alkaline material added in act (b) when the level of atmospheric hydrogen sulfide sensed in act (c) is greater than a first desired level, the level of dissolved sulfide sensed in act (c) is less than a second desired level, and an average level of residual nitrate sensed in act (c) is approximately 1-2 mg/L or greater.

41. (Original) The method of claim 22, further comprising acts of:

- (e) sensing a pH of the wastewater stream at or prior to the second position; and
- (f) sensing a pH of the wastewater stream downstream of the first and second positions.

42. (Original) The method of claim 41, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide and the level of dissolved sulfide in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of decreasing an amount of the alkaline material added in act (b) when the level of atmospheric hydrogen sulfide and the level of dissolved sulfide sensed in act (c) are less than a desired level, and the act (f) indicates that the pH of the wastewater downstream of the first and second positions is at least one unit of pH higher than the pH of the wastewater stream sensed in act (e).

43. (Original) The method of claim 41, wherein the act (c) includes an act of sensing the level of atmospheric hydrogen sulfide, the level of dissolved sulfide, and the level of residual nitrate in the wastewater stream downstream of the first and second positions, and wherein the act (d) includes an act of decreasing an amount of the alkaline material added in act (b) when the level of atmospheric hydrogen sulfide and the level of dissolved sulfide sensed in act (c) are less than a desired level, the level of residual nitrate sensed in act (c) is negligible, and the act (f) indicates that the pH of the wastewater downstream of the first and second positions is at least one unit of pH higher than the pH of the wastewater stream sensed in act (e).

44. (Original) The method of claim 22, wherein the acts (a) and (b) are performed at a same position in the wastewater stream.

Claims 45-69 (Canceled).